Project Baseline Summary Report

Data Source: **EM CDB** Report Number: **GEN-01b**

Operations/Field Office: **Oakland** Print Date: **3/9/2000**

Site Summary Level: **Energy Technology Engineering Center** HQ ID: **0263**

Project **OK-007 / ETEC Remediation**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: This project includes the following:
Facilities to undergoing remediation include a buried foundation (below grade portions of Building 059) the Large Leak Test Rig, LLTR (above ground portion of B59), the Radioactive Materials Handling Facility (RMHF), B064 Sideyard. The Sodium Disposal Facility and other testing resulted in some offsite contamination, including tritium and other radionuclides. Building 056 Landfill is currently part of a Remedial Facility Investigation (RFI)
Contaminated soils will primarily be generated from Building 886 (former Sodium Disposal Facility).
Other facilities undergoing environmental restoration include the Sodium Disposal Facility (Building 886), the Building 056 Landfill.
The Radioactive Materials Handling Facility (RMHF) consists primarily of Buildings 021, 022 and 075. These facilities contained radioactivity from storage activities. The RMHF will be decontaminated and decommissioned after all other radioactive cleanups at ETEC heve been completed. The RMHF D&D will be completed in FY2005
, and verification is expected in FY2006.
Other D&D scope of work includes all liquid metal loops/systems, which consists of seven sodium test facilities, approximately seventy other structures potentially containing non-sodium hazardous material and electrical sub stations. The new scope consists of about 45,000 gallons of reactor grade sodium and large volumes of other hazardous materials.

Technical Approach: Hazardous Wastes: Water-Vapor Nitrogen (WVN) technique was selected as the primary approach for cleaning of sodium loop/systems. The advantages of this approach, applied to ETEC facilities are: the process is effective in removing both elemental sodium and sodium oxides and can be designed to generate no hazardous wastes. It can be operated to completely remove all sodium from sodium piping, tanks, and other drainable component, eliminating the need for secondary cleaning (Oakland Site Technology Need Nos. 11, 12, 15, 17). This proc ess is cost effective; it has a low capital cost, and uses low cost reagents. This process results in a product, sodium hydroxide.

Due to the site`s fractured hydrogeologic system, vertical and horizontal characterization of groundwater contamination is difficult, and the selected remediation technology must operate by themselves or in combination with pump-and-treat technology to provide an overall remediation system. The ultimate goal of the groundwater remediation program is to identify technologies which can be made part of a sitewide long-term remediation program applied to other sites with fracture dominated groundwater movement. These technologies should have potential for cleanup of the site in significantly less time than currently used pump-and-treat methods. A series of field tests will be performed as part of the process for determining the most effective remediation strategy. Among the technologies that are being considered for testing are anaerobic bioremediation, air sparging, hot air sparging, steam injection, ozone injection, biosparging, moving bed liquid phase carbon adsorption, and high vacuum dual phase extraction. The re must be no possibility of adverse impact on neighboring property. The technique being tested must not increase water/contaminant flow beyond the test area boundaries. Decreased contaminant migration during the pilot tests is considered a goal.

Project Status in FY 2006:

The Ten Year Plan end state would be achieved by the end of FY2006:
D&D will have been completed by FY2006, including all regulatory required releases.

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Project **OK-007 / ETEC Remediation**

Project Description Narratives

In FY2006 a groundwater remediation system (scheduled for installation in FY99) will be in operation. Under the terms of the contract, Rocketdyne will assume responsibility for all post-closure groundwater montioring.

Post-2006 Project Scope:

N/A, this project is expected to meet TYP end state requirement by the end of FY2006.
After FY2007, there will be no DOE presence on-site.

Project End State

D&D will have been completed by FY2007, followed by post-D&D S&M until federal and states regulatory agencies grant release of the site for other uses (most likely industrial).

In FY2006 a groundwater remediation systems, installed in prior years . Afterwards, there will be a requirement for long-term groundwater monitoring.

Cost Baseline Comments:

ETEC has completed a new baseline that includes the new scope associated with landlord activities. The baseline has an activity based cost estimate for the effort. The baseline has been validated.

Safety & Health Hazards:

There is about 45,000 gallons of metallic sodium on site. Most of the sodium is in bulk form with the remainder existing as residue in pipes and valves. There are three radioactively contaminated facilities at ETEC (Building 024, Building 059, and the Radioactive Materials Handling Facility. There is a great deal of dismantlement activity at ETEC so there are the hazards that exist with the construction industry.

Hazards include potential physical injury from contacting objects during building demolition activities, internal injury from inhalation of hazardous materials such as sodium oxides, ammonia, asbestos and other chemicals, fire and radiation exposure.

At the end of FY07, the project end state, the only outstanding hazard will be contaminated groundwater. Prior to the end of FY06, a groundwater cleanup strategy will be adopted and implemented. Only maintenance of the groundwater remediation system will remain.

Safety & Health Work Performance:

ETEC utilizes a safety program called "Work Smart" to ensure the safety of their activities. Before a new activity is undertaken, a Work Smart analysis is performed by management and the staff involved with the project.

Work is performed in accordance with established procedures, guidelines and the applicable laws and regulations. OSHA regulations are implemented through the site Health & Safety Plan, the Injury and Illness Prevention Program and employee training. Experienced workers train inexperienced workers. A "cold man" is utilized for controlled entry areas where hazards requiring respiratory PPE exist or radiation exposure control is needed.

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Project **OK-007 / ETEC Remediation**

Project Description Narratives

Periodic fire watch patrols are performed during normal and off-shift hours. First aid and paramedic ambulance service is provided on site. Costs associated with these activities are reflected in PBS OK-0265.

PBS Comments:

Effective October 1, 1996, the Energy Technology Engineering Center became an EM-40 site. Previously, Nuclear Energy was the landlord. There are no longer any ongoing DOE-funded research activities at the site.

An inventory of all facilities at ETEC has been completed This report includes assessments of each facility that will be utilized in completing the remediation project.

Baseline Validation Narrative:

The current baseline has been validated.

General PBS Information

Project Validated? Yes **Date Validated:** 3/31/1997

Has Headquarters reviewed and approved project? Yes

Date Project was Added: 12/1/1997

Baseline Submission Date: 7/13/1999

FEDPLAN Project? Yes

Drivers:

CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
Y	Y	N	Y	N	Y	Y	Y

Project Identification Information

DOE Project Manager: Mike Lopez

DOE Project Manager Phone Number: 510-637-1633

DOE Project Manager Fax Number: 510-637-2078

DOE Project Manager e-mail address: mike.lopez@oak.doe.gov

Is this a High Visibility Project (Y/N):

Planning Section

Project Baseline Summary Report

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Print Date: **3/9/2000**

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Project **OK-007 / ETEC Remediation**

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	119,955	3,300	123,255	12,813	12,813	9,743	9,743	8,101	10,248	11,450	11,500	12,800	14,100	14,900	14,300
PBS Baseline (constant 1999 dollars)	112,010	2,778	114,788	12,813	12,813	9,743	9,743	8,101	9,979	10,920	10,742	11,710	12,634	13,076	12,292
PBS EM Baseline (current year dollars)	119,955	3,300	123,255	12,813	12,813	9,743	9,743	8,101	10,248	11,450	11,500	12,800	14,100	14,900	14,300
PBS EM Baseline (constant 1999 dollars)	112,010	2,778	114,788	12,813	12,813	9,743	9,743	8,101	9,979	10,920	10,742	11,710	12,634	13,076	12,292

	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS Baseline (current year dollars)	3,300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	2,778	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	3,300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	2,778	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

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Project **OK-007 / ETEC Remediation**

2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/30/2006

Current Projected End Date of Project: 9/30/2007

Explanation of Project Completion Date Difference (if applicable):

The completion date of 9/30/2007 is the accurate one. The contract with Rocketdyne Propulsion and Power mandates that we clean up the site by then. The contractor will assume post-closure gruondwater monitoring responsibility, relieving the government of that responsibility.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	127,608	**Actual 1997 Cost:**	12,813	**Actual 1998 Cost:**	9,743
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	105,052	**Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):**			2,836
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	107,888				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):	15,655	Contractor will assume responsiblity for long-term groundwater monitoring in FY07.
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):		
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	92,233	
Additional Amount to Reconcile (+):	-1	Cost difference is based upon the scope and associated cost that were negotiated with the contractor
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	**92,232**	

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Project **OK-007 / ETEC Remediation**

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Corrective Measures study			10/2/2002								
RMHF D&D			11/1/2001								
RMHF			8/1/2004								
RMHF			8/1/2004								
RMHF			3/1/2005								
RMHF			4/1/2005								
RMHF			4/1/2006								
RMHF			8/1/2006								
Corrective measures implementation			9/12/2006								
Project mission completion			9/30/2007								
Contract initiation with Boeing for ETEC Site			12/31/1999						Y		
Project start date			10/1/1990								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Corrective Measures study			Y				1	4	1		Corrective measures phase of the RFI process
RMHF D&D							3	4	5		Start of D&D
RMHF						Y	3	4	5		Completion of D&D
RMHF							3	3	5		Start of the release for unrestricted use process for formerly radiologically contaminated facilities
RMHF							2	3	5		End of the release for unrestricted use process

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
RMHF							3	4	5		Start of RCRA closure
RMHF							3	4	5		End of RCRA closure
RMHF							3	3	5		End of RMHF RCRA site restoration
Corrective measures implementation							3	4	5		End of RFI process
Project mission completion					Y	Y	3	3	5		End of DOE liability
Contract initiation with Boeing for ETEC Site											
Project start date				Y							Date Remediation work began.

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planne 200
RS														
Assess.	NR	2.00	0.00	2.00		2.00	2.00							
RS														
Cleanup	NR	2.00	0.00	2.00		2.00	2.00							
Fac.														
Decom.- Assess.	NF	8.00	0.00	8.00				1.00	5.00	2.00				
Fac.														
Decom- Cleanup	NF	7.00	0.00	7.00					3.00	3.00	1.00			
Fac.														
Deact. During Per.	NF	4.00	0.00	4.00					4.00					

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Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planne 20(
Rem. Waste														
Disposed	M3	16,299.20	100.00	16,399.20				7,258.00	1,828.00	1,649.20	1,440.00	1,126.00	1,080.00	796.(

Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
RS													
Assess.	NR												
RS													
Cleanup	NR												
Fac.													
Decom.- Assess.	NF												
Fac.													
Decom- Cleanup	NF												
Fac.													
Deact. During Per.	NF												
Rem. Waste													
Disposed	M3	796.00	791.00	331.00	100.00								

Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
RS										
Assess.	NR									2.00
RS										
Cleanup	NR									2.00

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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
Fac.										
Decom.- Assess.	NF								1.00	9.00
Fac.										
Decom- Cleanup	NF								1.00	9.00
Fac.										
Deact. During Per.	NF								7.00	7.00
Rem. Waste										
Disposed	M3								0.00	7,313.20

Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
ETEC	0002		B064 \ BUILDING 064 SIDEYARD	Spills and Leaks/Surface Spills	1997		6/30/1997	1997		9/30/1997	1989	N		Y
ETEC	0007		OCY \ Old Conservation Yard-RAD	Spills and Leaks/Surface Spills	1997		6/30/1997	1997		9/30/1997	1989	N		Y
ETEC	0051	R	B4019,Equipment storage and computer center	Buildings & Equipment/Physical Plant	1996			1998				N		Y
ETEC	0052	R	Bldg. 4036, office building	Buildings & Equipment/Equipment								N		N

Facility Decommissioning

Site Code	RSF ID	Change Flag	Description	Class/Subclass	Hazard	Plan. Assess. Year	Fore. Assess. Year	Actual Assess. Date	Plan. Deac. Year	Fore. Deac. Year	Actual Deac. Date	Plan. Comp. Year	Fore. Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
ETEC	0037		T059 \ SNAP-8 Ground Prototype Test Facility (part of Building 059)	Buildings & Equipment\Other Buildings	Radiological Facility	1999	1999	12/15/1998				2001	2000		1976	N		Y

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Facility Decommissioning

Site Code	RSF ID	Change Flag	Description	Class/Subclass	Hazard	Plan. Assess. Year	Fore. Assess. Year	Actual Assess. Date	Plan. Deac. Year	Fore. Deac. Year	Actual Deac. Date	Plan. Comp. Year	Fore. Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
ETEC	0044		H-1 Heater	Buildings & Equipment\Other Buildings	Non-Nuclear Facility	1998	1999	11/30/1998				2000	2000		1996	Y		N
ETEC	0063		B4019, equipment storage and computer center	Buildings & Equipment\Equipment	Radiological Facility	1996	2000					1998	2000		1989	N		Y
ETEC	0064		B4036, office bldg	Buildings & Equipment\Administrative Building	Other Industrial Facility	2000	2000					2000	2000		1989	N		N
ETEC	0065		B4039, office bldg	Buildings & Equipment\Administrative Building	Other Industrial Facility	2000	2000					2000	2000		1989	Y		N
ETEC	0073		B4320, fuel oil pump building	Buildings & Equipment\Physical Plant	Other Industrial Facility	1999		4/1/1999	1999			2000		7/31/1999	1989	Y		N
ETEC	0074		B4731. fuel oil tank	Tanks\Above Ground Storage Tanks	Other Industrial Facility	1999		4/1/1999	1999			1999		7/31/1999	1989	Y		N
ETEC	0075		B4732, fuel oil tank	Tanks\Above Ground Storage Tanks	Other Industrial Facility	1999		4/1/1999	1999			1999		7/31/1999	1989	Y		N
ETEC	0076		B4735, fuel oil day tank	Tanks\Above Ground Storage Tanks	Other Industrial Facility	1999		4/1/1999	1999			1999		7/31/1999	1989	Y		N

Facility Deactivation

Site Code	RSF ID	Change Flag	Description	Class/Subclass	Hazard	Plan. Assess. Year	Fore. Assess. Year	Actual Assess. Date	Plan. Deac. Year	Fore. Deac. Year	Actual Deac. Date	Plan. Comp. Year	Fore. Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
ETEC	0044		H-1 Heater	Buildings & Equipment\Other Buildings	Non-Nuclear Facility	1998	1999	11/30/1998				2000	2000		1996	Y		N
ETEC	0065		B4039, office bldg	Buildings &	Other Industrial	2000	2000					2000	2000		1989	Y		N

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Project **OK-007 / ETEC Remediation**

Facility Deactivation

Site Code	RSF ID	Change Flag	Description	Class/Subclass	Hazard	Plan. Assess. Year	Fore. Assess. Year	Actual Assess. Date	Plan. Deac. Year	Fore. Deac. Year	Actual Deac. Date	Plan. Comp. Year	Fore. Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
				Equipment\Administrative Building	Facility													
ETEC	0073		B4320, fuel oil pump building	Buildings & Equipment\Physical Plant	Other Industrial Facility	1999		4/1/1999	1999			2000		7/31/1999	1989	Y		N
ETEC	0074		B4731. fuel oil tank	Tanks\Above Ground Storage Tanks	Other Industrial Facility	1999		4/1/1999	1999			1999		7/31/1999	1989	Y		N
ETEC	0075		B4732, fuel oil tank	Tanks\Above Ground Storage Tanks	Other Industrial Facility	1999		4/1/1999	1999			1999		7/31/1999	1989	Y		N
ETEC	0076		B4735, fuel oil day tank	Tanks\Above Ground Storage Tanks	Other Industrial Facility	1999		4/1/1999	1999			1999		7/31/1999	1989	Y		N

Technology Needs

Site Need Code: OK99-11

Site Need Name: A method to determine that the sodium loop piping and system components no longer exhibit the hazardous waste characteristic of corrosivity after they are cleaned

Focus Area Work Package ID: DD-07 **Focus Area Work Package:** Hot Cell Facilities and Laboratory Equipment D&D

Focus Area: DDFA **Agree with Technology Link:** N

Benefits (Cost, Risk Reduction, Both): Cost

Technologies **Cost Savings (in thousands of dollars)** **Range of Estimate**

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Project **OK-007 / ETEC Remediation**

Technology Needs

Site Need Code: OK99-20

Site Need Name: Innovative Technology to Investigate Geology and Groundwater Flow Characteristics in Fractured Rock

Focus Area Work Package ID: SS-01

Focus Area Work Package: Characterization, Monitoring, Modeling and Analysis

Focus Area: SCFA

Agree with Technology Link: N

Benefits (Cost, Risk Reduction, Both): Both

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

Related CCP Milestones	Related Waste Streams	Agree?	Change?
	01694: DE - HAZ-Contaminated Groundwater	Y	N